

Appl. No. 10/687,006
Reply dated October 31, 2005
Reply to Office Action of June 01, 2005

Listing of Claims

1. (original) A method of making a nonwoven web comprising:
 - a) providing a source of fibers;
 - b) subjecting the fibers to an electrostatic charge;
 - c) deflecting the fibers with a non-contacting deflecting device; and
 - d) collecting the fibers on a moving forming surface to form the nonwoven web.
2. (original) The method of Claim 1 wherein the fibers are substantially continuous fibers provided by melt spinning.
3. (original) The method of Claim 2 wherein the fibers are subjected to pneumatic drawing forces prior to being subjected to the electrostatic charge.
4. (original) The method of Claim 3 wherein the non-contacting deflecting device is an air jet deflector providing discrete jets of air.
5. (original) The method of Claim 4 wherein the air jet deflector provides perturbed jets of air.
6. (original) The method of Claim 4 wherein the electrostatic charge is provided using a charged pin array.
7. (original) The method of Claim 6 wherein the air jet deflector is a target electrode for the charged pin array.
8. (original) The method of Claim 4 wherein the air jets are angled with respect to the machine direction at an angle of about 15 degrees to about 60 degrees.
9. (original) The method of Claim 4 wherein the air jets are angled downward with respect to the horizontal plane at an angle up to about 60 degrees.
10. (original) The method of Claim 3 wherein the non-contacting deflecting device is an air knife which delivers a curtain of air.

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11. (original) A nonwoven web produced in accordance with the method of Claim 2.
12. (original) A nonwoven web produced in accordance with the method of Claim 3.
13. (original) A nonwoven web produced in accordance with the method of Claim 6.
14. (original) An apparatus for forming a fibrous nonwoven web comprising:
 - a) a source of fibers;
 - b) a device for applying an electrostatic charge to the fibers;
 - c) a non-contacting fiber deflecting device adapted to affect the fibers while the fibers are under the influence of the applied electrostatic charge; and
 - d) a forming surface for collecting the fibers as a fibrous nonwoven web.
15. (original) The apparatus of Claim 14 wherein the source of fibers is a melt spinning device for producing continuous fibers and wherein the device for applying the electrostatic charge is a charged pin array, and the apparatus further including a fiber drawing unit applying pneumatic drawing forces to the continuous fibers.
16. (original) The apparatus of Claim 15 wherein the device for applying the electrostatic charge to the fibers is located to apply the electrostatic charge before the fibers enter the fiber drawing unit.
17. (original) The apparatus of Claim 15 wherein the device for applying the electrostatic charge to the fibers is located to apply the electrostatic charge to the fibers while the fibers are in the fiber drawing unit.
18. (original) The apparatus of Claim 15 wherein the device for applying the electrostatic charge to the fibers is located to apply the electrostatic charge to the fibers after the fibers exit the fiber drawing unit and before the fibers are collected on the forming surface.
19. (original) The apparatus of Claim 17 wherein the non-contacting fiber deflecting device is an air jet deflector providing discrete jets of air, which air jets are substantially constant or are perturbed.

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20. (original) The apparatus of Claim 18 wherein the non-contacting fiber deflecting device is an air jet deflector providing discrete jets of air, which air jets are substantially constant or are perturbed.
21. (original) The apparatus of Claim 19 wherein the air jet deflector is located on the opposite side of the fibers from the device for applying the electrostatic charge, and wherein the air jet deflector is a target electrode.
22. (original) The apparatus of Claim 20 wherein the air jet deflector is located on the opposite side of the fibers from the device for applying the electrostatic charge, and wherein the air jet deflector is a target electrode.
23. (original) The apparatus of Claim 21 wherein the air jets are oriented at an angle with respect to at least one direction selected from the group consisting of the machine direction and the horizontal plane, the angle determined by the desired orientation of the fibers in the nonwoven web.
24. (original) The apparatus of Claim 22 wherein the air jets are oriented at an angle with respect to at least one direction selected from the group consisting of the machine direction and the horizontal plane, the angle determined by the desired orientation of the fibers in the nonwoven web.
25. (original) The apparatus of Claim 20 further comprising a second air jet deflector located on the opposite side of the fibers from the first air jet deflector.
26. (original) The apparatus of Claim 25 wherein the charged pin array is located upon one non-contacting deflection device.